WHAT IS CLAIMED IS:

1. A processing apparatus for performing a process by supplying alternately a first source gas and a second source gas to a processing substrate, the processing apparatus comprising:

a processing container in which the processing substrate is placed;

a first supply system for supplying said first source gas into the processing container;

a second supply system for supplying said second source gas into the processing container;

a first exhaust system for exhausting said first source gas from an inside of the processing container;

a second exhaust system for exhausting said second source gas from an inside of the processing container;

supply system switching means for switching a gas supply system connected to said processing container between said first supply system and said second supply system;

exhaust system switching means for switching a gas exhaust system of said processing container between said first exhaust system and said second exhaust system;

control means for controlling said supply system switching means and said exhaust system switching means so as to switch the gas exhaust system to said first exhaust system when the gas supply system is switched to said first supply system, and switch the gas exhaust system to said second exhaust system when the gas supply system is switched to said second supply system.

2. The processing apparatus as claimed in claim 1 further comprising:

a trap provided in said first exhaust system so as to trap said first source gas; and

a recovery pipe for returning said first source gas that is trapped by the trap to said first supply system.

3. The processing apparatus as claimed in claim 1 further comprising a trap provided in said second exhaust system so as to trap a reaction by-product produced by a reaction of said first source gas and said second source gas.

4. The processing apparatus as claimed in claim 1 further comprising a third supply system for supplying an inert gas to said processing apparatus.

5. The processing apparatus as claimed in claim 1, wherein said supply system switching system includes a first supply system stop valve provided in said first supply system and a second supply system stop valve provided in said second supply system, and opening and closing of the first supply system stop valve and the

second supply system stop valve are controlled by said control means.

6. The processing apparatus as claimed in claim 1, wherein said exhaust system switching system includes a first exhaust system stop valve provided in said first exhaust system and a second exhaust system stop valve provided in said second exhaust system, and opening and closing of the first exhaust system stop valve and the second exhaust system stop valve are controlled by said control means.

7. The processing apparatus as claimed in claim 1, wherein said supply system switching means includes a supply system three-way valve connectable to one of said first supply system and said second supply system; said exhaust system switching means includes an exhaust system three-way valve connectable to one of said first exhaust system and said second exhaust system; and said supply system three-way valve and said exhaust system three-way valve are controlled by said control means.

8. The processing apparatus as claimed in claim 7, wherein said supply system three-way valve and said

exhaust system three-way valve are pneumatically operated valves, and a compressed air supplied to the pneumatically operated valves is supplied by an air-switching valve to one of said supply system three-way valve and said exhaust system three-way valve.

9. The processing apparatus as claimed in claim 1, wherein said first source gas is selected from a group consisting of $TiCl_4$, TiF_4, $TiBr_4$, TiI_4, $Ti[N(C_2H_5CH_3)]_4$, $Ti[N(CH_3)_2]_4$, $Ti[N(C_2H_5)_2]_4$, TaF_5, $TaCl_5$, $TaBr_5$, TaI_5, $Ta(NC(CH_3)_3)(N(C_2H_5)_2)_3$, $Ta(N(CH_3)_2)(NC_5H_{11})$, $Ta[N(C_2H_5)_2]_5$, $Ta[N(CH_3)_2]_5$ and $Ta(N(C_2H_5)_2)_3(N(C_2H_5)_2)$, and said second source gas is selected from a group consisting of NH_3, N_2H_4, $NH(CH_3)_2$ and $N_2H_3(CH_3)$, so as to deposit a TiN film or a TaN film on said processing substrate.

10. The processing apparatus as claimed in claim 4, wherein said first source gas is selected from a group consisting of $TiCl_4$, TiF_4, $TiBr_4$, TiI_4, $Ti[N(C_2H_5CH_3)]_4$, $Ti[N(CH_3)2]_4$, $Ti[N(C_2H_5)_2]_4$, TaF_5, $TaCl_5$, $TaBr_5$, TaI_5, $Ta(NC(CH_3)_3)(N(C_2H_5)_2)_3$, $Ta(N(CH_3)_2)(NC_5H_{11})$, $Ta[N(C_2H_5)_2]_5$, $Ta[N(CH_3)_2]_5$ and $Ta(N(C_2H_5)_2)_3(N(C_2H_5)_2)$, said second source gas is selected from a group consisting of NH_3, N_2H_4, $NH(CH_3)_2$ and $N_2H_3(CH_3)$, said inert gas is selected from a group consisting of N_2, Ar and He, so as to deposit a TiN film or a TaN film on said processing substrate.